

*The preservice teacher
knows the discipline...*

*Industrial Technology
Education*

(Grades 5-12)

Introduction

The following competencies are intended to clarify Standard 1.1, "... knows the discipline," in the N-STEP process. The competencies are firmly rooted in the profession's best knowledge and practices. They are drawn from guidelines established by the International Technology Education Association. The competencies are broadly stated with the intent that teacher preparation institutions will determine the breadth and depth of material for meeting the competencies. The statements represent the minimum expected of beginning teachers in order to be licensed to teach.

The Industrial Technology Education competencies have been developed to correlate with the following documents:

- Missouri's Show-Me Standards abbreviated as:
SS 1,4 = Social Studies section, statements 1 and 4
G 2.6-2.7 = Goal 2, statements 6 and 7
SC = Science section
M = Mathematics section
- Missouri's minimum requirements for Industrial Technology Education certification, effective September 1, 1997 abbreviated as:
CR 1-6 = Certification Requirement
- International Technology Education Association (ITEA)/Council on Technology Teacher Education guidelines as reprinted in the National Council for the Accreditation of Teacher Education Approved Curriculum Guidelines abbreviated as:
ITEA 1.2 = Standard 1.2

The beginning (preservice) industrial technology teacher will demonstrate a knowledge of and/or competency in the following areas of study:

1. Materials & Processes, Energy & Power, and Communication Technology (ITEA 1.1,1.2, 2.0, 3.1-11; M 1-3; SC 1, 2, 7, 8; G 2.6, 2.7; CR 1-3)	<ol style="list-style-type: none"> 1. Research that identifies and validates content structures for industrial technology education; 2. Technological concepts and principles; 3. Applied mathematic and scientific concepts and principles; 4. Technological applications in business, industry, and communities; 5. Resources, processes, tools, products, and services; 6. Selection and use of materials and human resources; 7. Selection and use of technological tools and equipment, such as production tooling, computer, and communication equipment; 8. Techniques to process resources; and 9. Emerging issues and trends communicated via trade organizations.
2. Current and Emerging Technologies Related To Industrial Technology Education (ITEA 3.2.1, 3.4, 3.8-3.10; SC 8; G2.6-2.7; CR 1-3)	<ol style="list-style-type: none"> 1. How electronic communications systems operate; 2. Installation and maintenance procedures for computer systems (hardware and software); and 3. Industrial computer applications.
3. Impact of Technological Developments on Society and the Environment (ITEA 3.1, 3.10; SC 8; SS 4-6; G 2.6-2.7; CR 4-5)	<ol style="list-style-type: none"> 1. Analyze the trade-offs that result from technological decision making; 2. Relationships among sustainable production, consumption, conservation, and maintenance of technological goods and services; 3. Significant historical events in the development of technology; 4. Forecast future innovations and the consequences of their use; and 5. Various cultures use of technology in solving problems.

The beginning (preservice) industrial technology teacher will demonstrate a knowledge of and/or competency in the following areas of study:

4. Safety Issues in Industrial Technology Learning Environments (ITEA 3.3; SC 8; SS 6; HP 6; G 4.7; CR 4)	<ol style="list-style-type: none"> 1. General safety procedures related to tools, equipment, materials, and processes; 2. Legal responsibilities and liability issues; and 3. Environmental factors contributing to safety (e.g., lighting, climate control, air quality, and organization and placement of equipment).
5. Foundations of Industrial Technology Education (ITEA 1.1, 1.2, 3.7, 4.1, 4.2; CR 4)	<ol style="list-style-type: none"> 1. Varying philosophies and rationales relative to industrial technology education and related programs; 2. Organizing and managing the industrial technology education program; 3. Maintaining industrial technology education laboratories; 4. Assessing and evaluating the effectiveness of industrial technology education programs; 5. Implementation and management of student organizations (e.g., Technology Student Association; Vocational Industrial Clubs of America; Junior Engineering Technical Society); 6. Awareness of external funding sources and how to secure funding and equipment through grant submission; and 7. Program promotion (e.g., community service, student recognition activities, in-school activities).
6. Career Opportunities in Technical Fields (ITEA 3.5; G 4.8)	<ol style="list-style-type: none"> 1. Educational preparation opportunities and careers; 2. Workplace readiness; and 3. Career adaptations needed for life-long learning in one's career field.